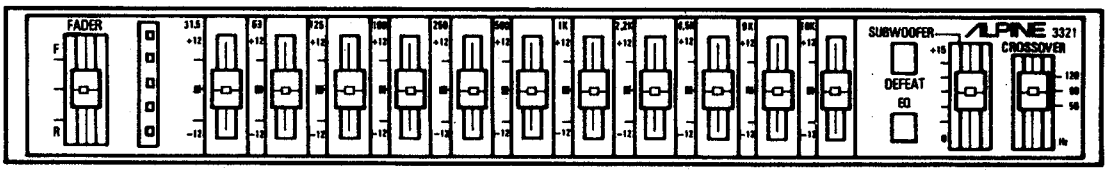
ALPINE SERVICE MANUAL

11-Band
Graphic Equalizer



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Specifications

Power Supply ..... DC 14.4V (11~16V)
Total Hamonic Distortion 0.04%
Input Sensitivity / Impedance ..... 0.5 ± 200mV / 9kohm
Output Impedance 1kohm
Frequency Response ..... 30Hz to 40kHz
Channel Crosstalk Attenuation 64dB
Frequency Shaping Equalizer Controls ..... Boost: 12 + 3dB, 12 − 6dB
Cut: −12 + 3dB, −12 − 6dB
Equalization Frequency 31.5Hz, 63Hz, 125Hz, 190Hz, 250Hz
500Hz, 1kHz, 2.2kHz, 4.5kHz, 9kHz, 18kHz
Subwoofer Frequency Response ..... 50, 80, 120 ± 20Hz
Subwoofer Control Effect ..... 15 ± 3dB
Signal to Noise Ratio (IHF-A) 94dB
Current Drain 300mA
Fader Control Effect 40dB
Channel Unbalance ..... 0 ± 3dB
Semiconductors ..... 19 IC's, 31 Transistors, 13 Diodes
5 Zener Diodes, 20 LED's
Dimensions ..... Nose Dimensions: 178(W) × 25(H) × 16(D)mm
Chassis Dimensions: 178(W) × 25(H) × 115(D)mm
Weight 0.7kg

NOTE : Due to continuing product improvement, spcifications and design subject to change without notice.

Parts Locations

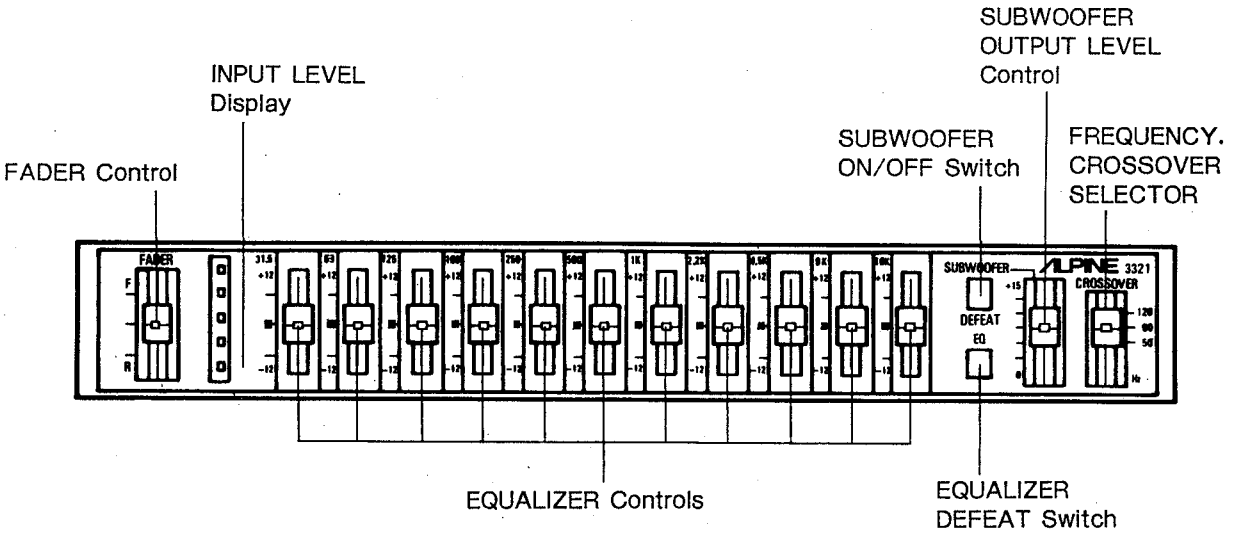


Figure 1

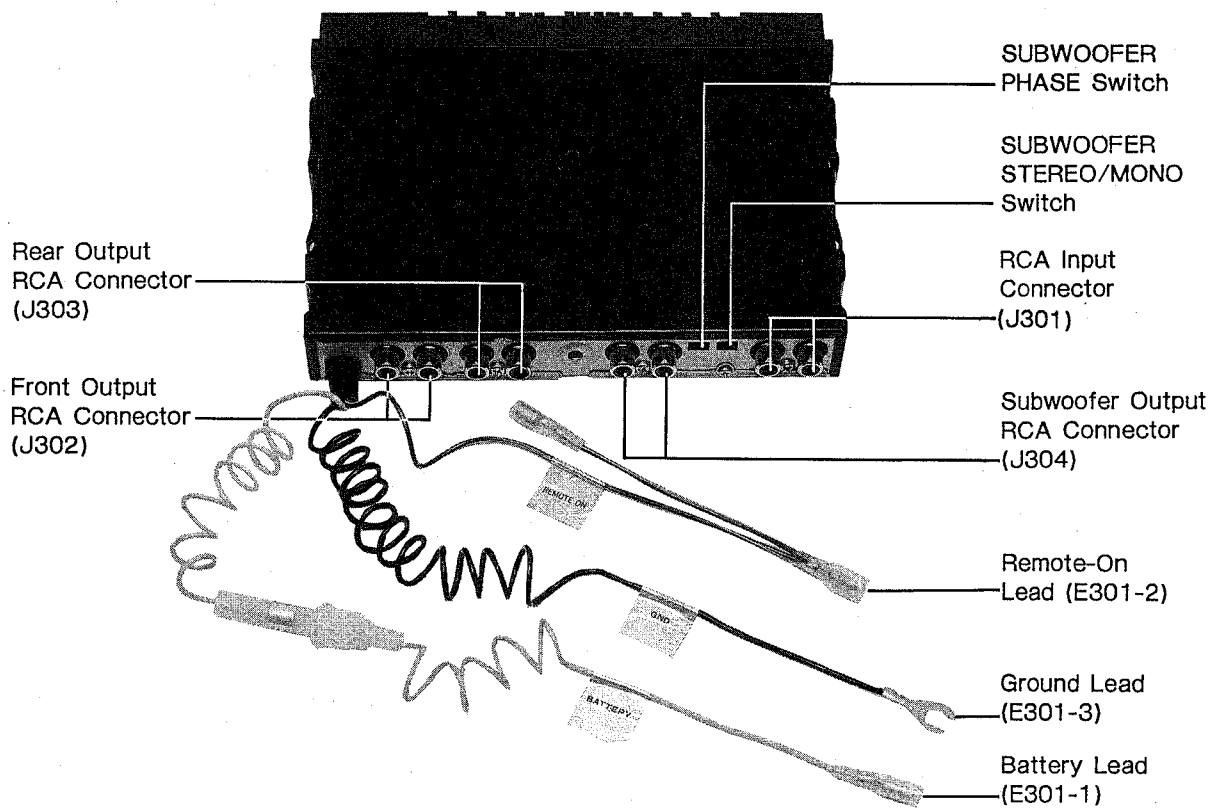
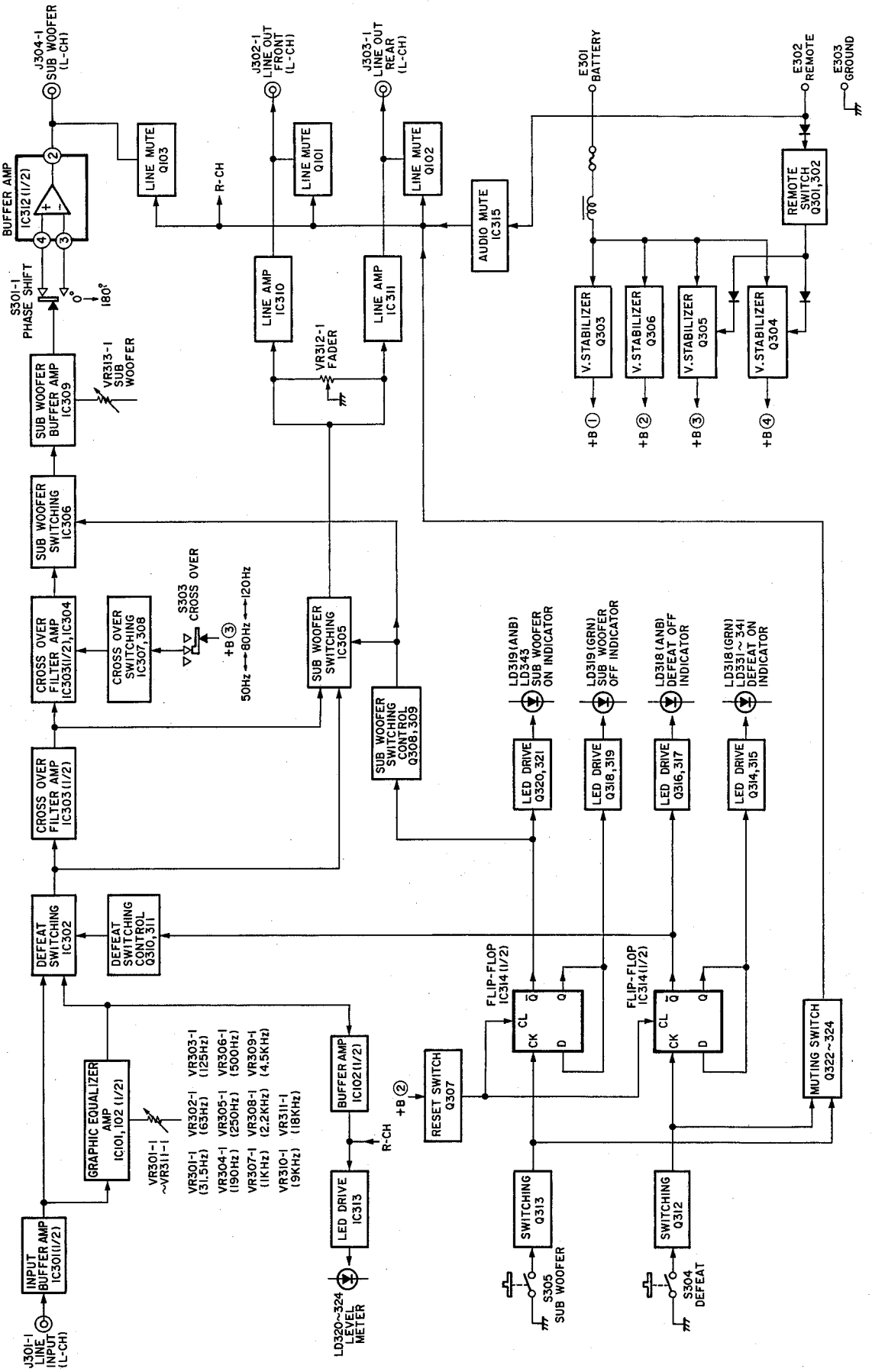
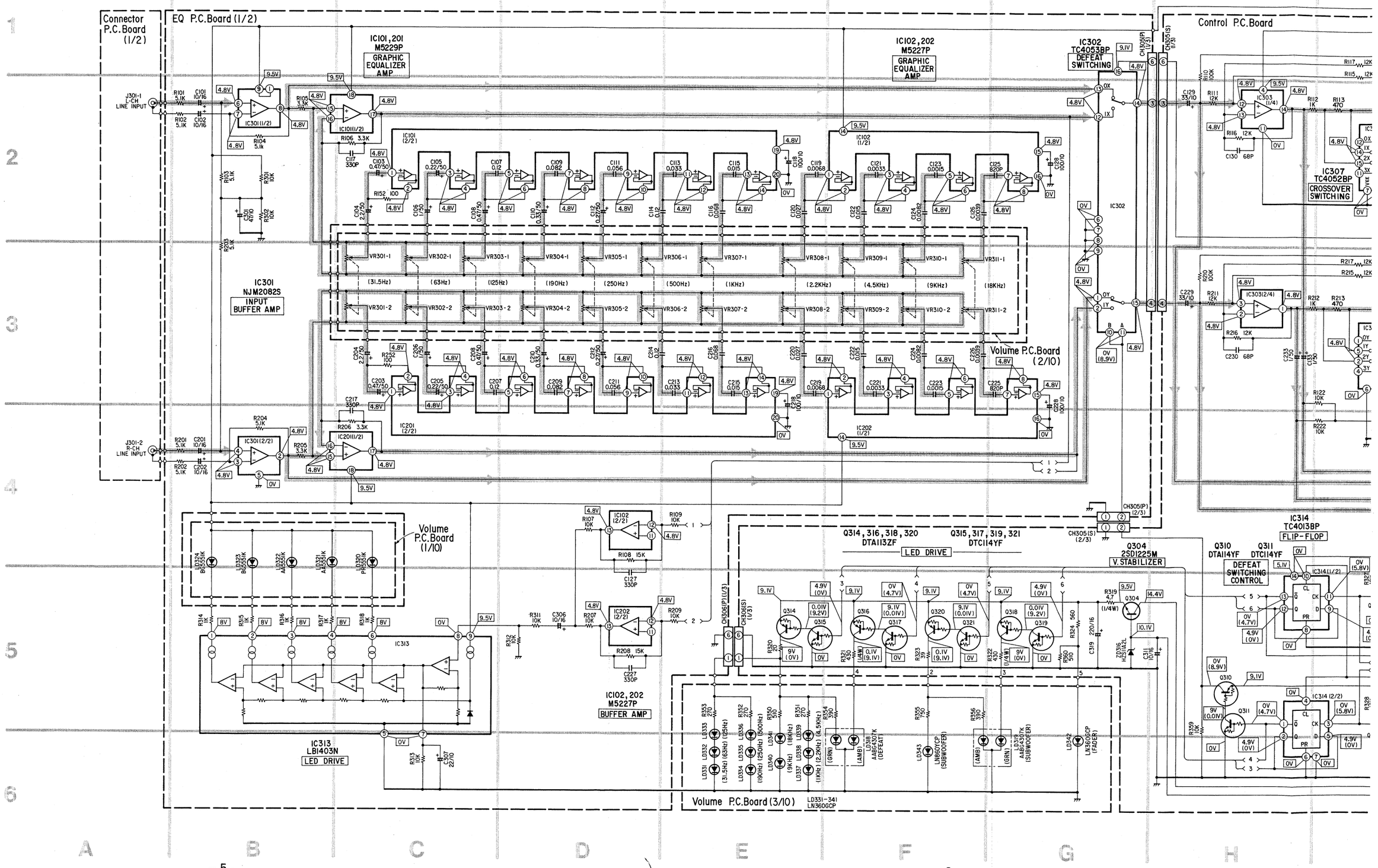


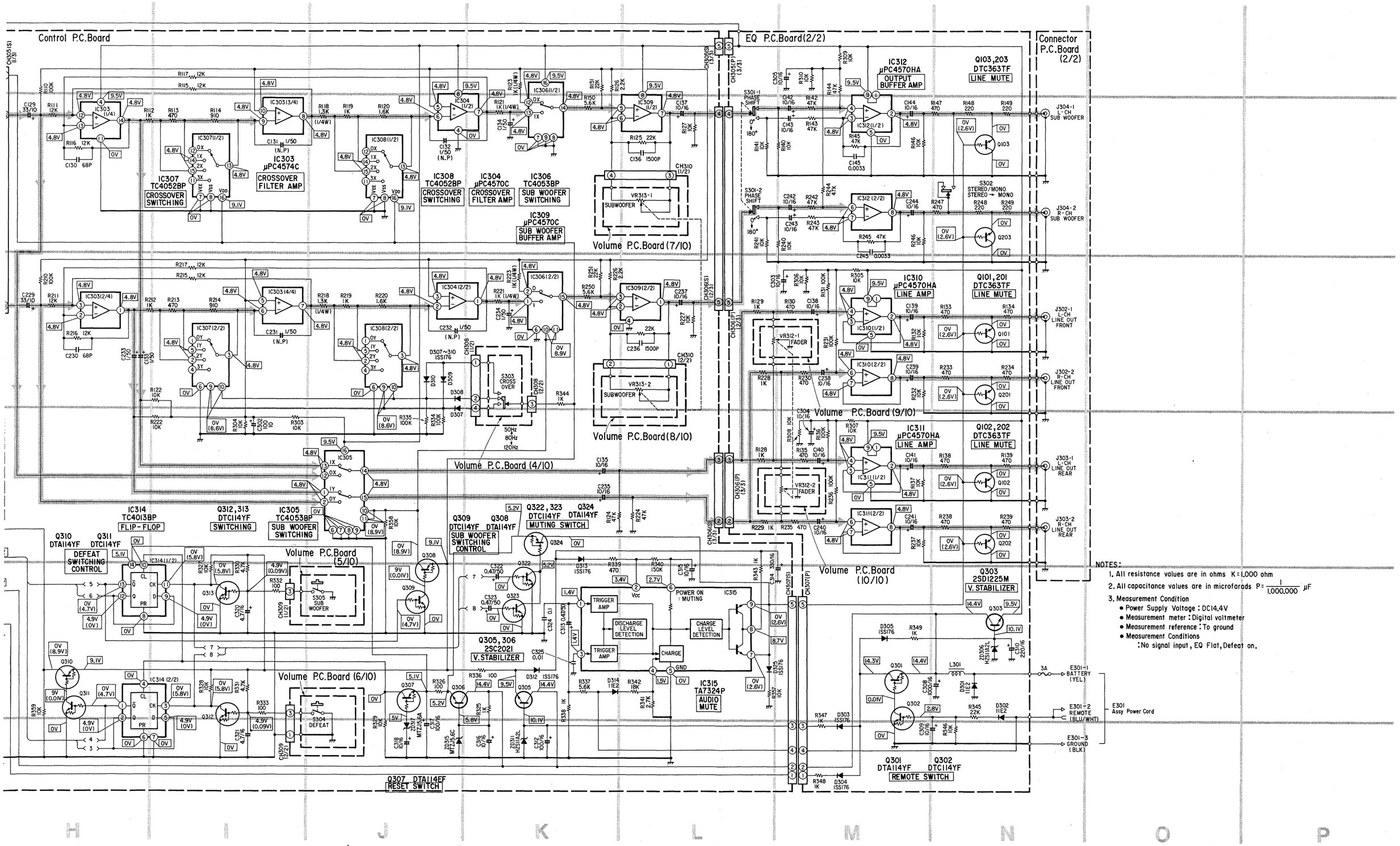
Figure 2

Block Diagram



Schematic Diagram



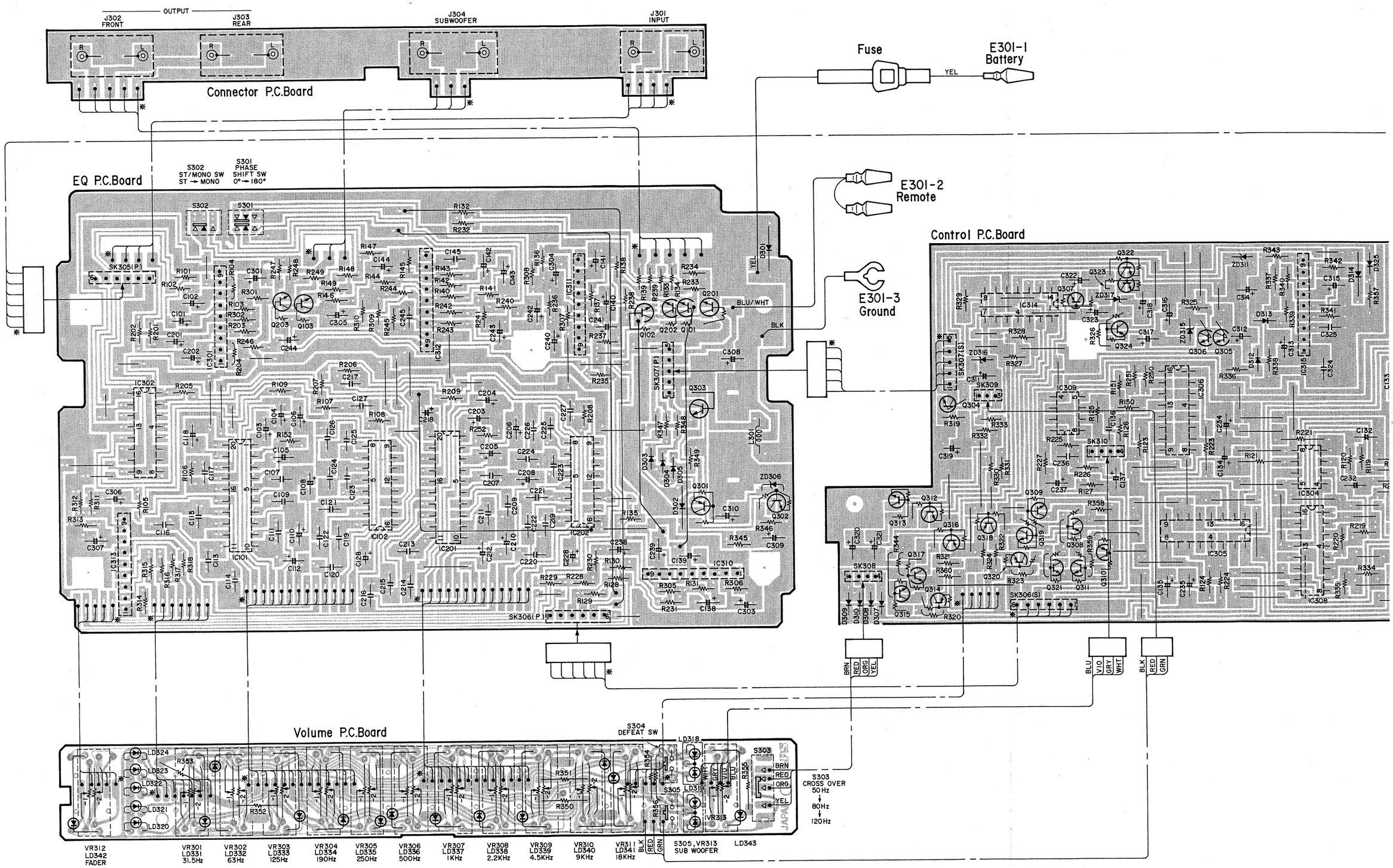


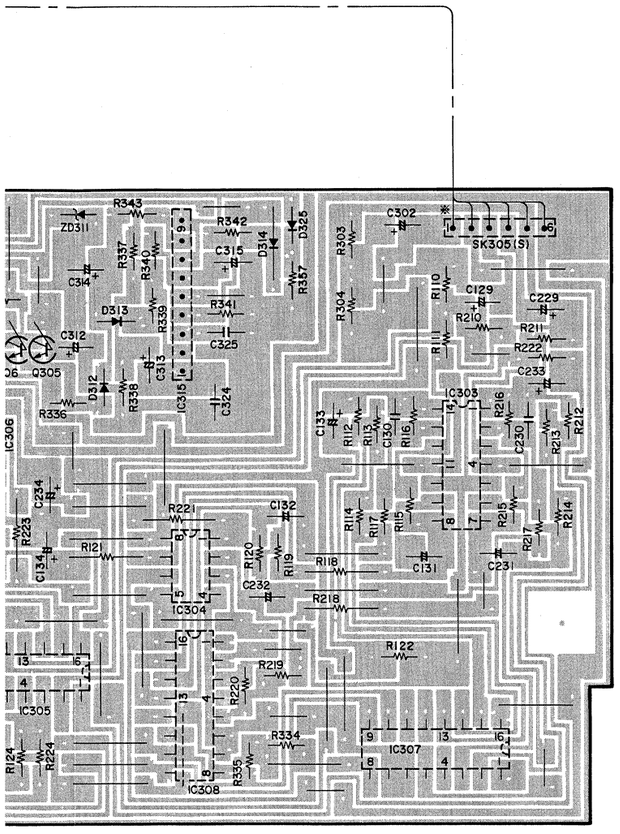
NOTES:

1. All resistance values are in ohms K=1,000 ohm
2. All capacitance values are in microfarads $P=\frac{1}{1,000,000}\ \mu F$
3. Measurement Condition
   - Power Supply Voltage : DC14.4V
   - Measurement meter : Digital voltmeter
   - Measurement reference : To ground
   - Measurement Conditions
     : No signal input, EQ Flat, Defeat on.

H I J K L M N O P

Parts Layout on P.C. Boards and Wiring Diagram





BLU ..... Blue
GRN ..... Green
BLK ..... Black
GRY ..... Gray
WHT ..... White
RED ..... Red
BRN ..... Brown
ORG ..... Orange
YEL ..... Yellow
VIO..... Violet
PNK ..... Pink

Electrical Parts List

Resistors: Carbon resistors under ¼ watts are not mentioned in the parts list, please confirm them by schematic diagram.
uF = microfarads, pF = picofarads

Abbreviations

RES. = Resistor	CAP. = Capacitor
C.F. = Carbon Film	ELY. = Electrolytic
M.F. = Metal Film	CER. = Ceramic
M.O. = Metal Oxide Film	MYL. = Mylar
M.P. = Metal Plate	TAN. = Tantalum
TR. = Transistor	POLY. = Polystyrol
TRANS. = Transformer	PP. = Polypropylene
CP. = Chip	PLT. = Polyethylene

Symbol No.	Part No.	Description
EQ P.C.Board		
IC's		
IC101	51T74296F01	M5229P
IC102	51T84232F01	M5227P
IC201	51T74296F01	M5229P
IC202	51T84232F01	M5227P
IC301	51E04904S01	NJM2082S
IC302	51T68388F01	TC4053BP
IC310	51T83403F03	μPC4570HA
IC311	51T83403F03	μPC4570HA
IC312	51T83403F03	μPC4570HA
IC313	51T61284F01	LB1403N
Transistors		
Q101	48T82763F31	DTC363TF
Q102	48T82763F31	DTC363TF
Q103	48T82763F31	DTC363TF
Q201	48T82763F31	DTC363TF
Q202	48T82763F31	DTC363TF
Q203	48T82763F31	DTC363TF
Q301	48T82762F06	DTA114YF
Q302	48T61307F01	DTC114YF
Q303	48T63085F01	2SD1225M
Diodes		
D301	48T84052F01	11E2
or	48T73984F01	DSF10C
D302	48T84052F01	11E2
or	48T73984F01	DSF10C
D303	48T58583F01	1SS176
or	48E01902S01	GMA-01
D304	48T58583F01	1SS176
or	48E01902S01	GMA-01
D305	48T58583F01	1SS176
or	48E01902S01	GMA-01
ZD306	48T83129F29	Zener, HZS11A2L

Symbol No.	Part No.	Description
Coil/Switches		
L301	24E04905S01	Choke Coil
S301	40E04906S01	Slide, SS-215-FC-M022B (PHASE SHIFT)
S302	40E04906S01	Slide, SS-215-FC-M022B (STEREO/MONO)
Capacitors		
C101	23E04908S01	ELY., 10μF/16V
C102	23E04908S01	ELY., 10μF/16V
C103	23E04909S01	ELY., 0.47μF/50V
C104	23E04910S01	ELY., 2.2μF/50V
C105	23E04911S01	ELY., 0.22μF/50V
C106	23E04912S01	ELY., 1μF/50V
C107	08E04913S01	Film, 0.12μF
C108	23E04909S01	ELY., 0.47μF/50V
C109	08E04914S01	Film, 0.082μF
C110	23E04915S01	ELY., 0.33μF/50V
C111	08E04916S01	Film, 0.056μF
C112	23E04917S01	ELY., 0.27μF/50V
C113	08E04918S01	Film, 0.033μF
C114	08E04913S01	Film, 0.12μF
C115	08E04919S01	Film, 0.015μF
C116	08E04920S01	Film, 0.068μF
C117	21E04921S01	CER., 330pF
C118	23E04922S01	ELY., 100μF/10V
C119	08E04923S01	MYL., 6800pF
C120	08E04924S01	Film, 0.027μF
C121	08E04925S01	MYL., 3300pF
C122	08E04919S01	Film, 0.015μF
C123	08E04926S01	MYL., 1500pF
C124	08E04927S01	MYL., 8200pF
C125	21E04928S01	CER., 820pF
C126	08E04929S01	MYL., 3900pF
C127	21E04921S01	CER., 330pF
C128	23E04922S01	ELY., 100μF/10V
C138	23E04908S01	ELY., 10μF/16V
C139	23E04908S01	ELY., 10μF/16V
C140	23E04908S01	ELY., 10μF/16V
C141	23E04908S01	ELY., 10μF/16V
C142	23E04908S01	ELY., 10μF/16V
C143	23E04908S01	ELY., 10μF/16V
C144	23E04908S01	ELY., 10μF/16V
C145	08E04925S01	MYL., 3300pF
C201	23E04908S01	ELY., 10μF/16V
C202	23E04908S01	ELY., 10μF/16V
C203	23E04909S01	ELY., 0.47μF/50V
C204	23E04910S01	ELY., 2.2μF/50V
C205	23E04911S01	ELY., 0.22μF/50V
C206	23E04912S01	ELY., 1μF/50V
C207	08E04913S01	Film, 0.12μF
C208	23E04909S01	ELY., 0.47μF/50V
C209	08E04914S01	Film, 0.082μF

Symbol No.	Part No.	Description
C210	23E04915S01	ELY., 0.33μF/50V
C211	08E04916S01	Film, 0.056μF
C212	23E04917S01	ELY., 0.27μF/50V
C213	08E04918S01	Film, 0.033μF
C214	08E04913S01	Film, 0.12μF
C215	08E04919S01	Film, 0.015μF
C216	08E04920S01	Film, 0.068μF
C217	21E04921S01	CER., 330pF
C218	23E04907S01	ELY., 100μF/10V
C219	08E04923S01	MYL., 6800pF
C220	08E04924S01	Film, 0.027μF
C221	08E04925S01	MYL., 3300pF
C222	08E04919S01	Film, 0.015μF
C223	08E04926S01	MYL., 1500pF
C224	08E04927S01	MYL., 8200pF
C225	21E04928S01	CER., 820pF
C226	08E04929S01	MYL., 3900pF
C227	21E04921S01	CER., 330pF
C228	23E04907S01	ELY., 100μF/10V
C238	23E04908S01	ELY., 10μF/16V
C239	23E04908S01	ELY., 10μF/16V
C240	23E04908S01	ELY., 10μF/16V
C241	23E04908S01	ELY., 10μF/16V
C242	23E04908S01	ELY., 10μF/16V
C243	23E04908S01	ELY., 10μF/16V
C244	23E04908S01	ELY., 10μF/16V
C245	08E04925S01	MYL., 3300pF
C301	23E04930S01	ELY., 47μF/10V
C303	23E04908S01	ELY., 10μF/16V
C304	23E04908S01	ELY., 10μF/16V
C305	23E04908S01	ELY., 10μF/16V
C306	23E04908S01	ELY., 10μF/16V
C307	23E04931S01	ELY., 22μF/10V
C308	23E04932S01	ELY., 1000μF/16V
C309	23E04908S01	ELY., 10μF/16V
C310	23E04933S01	ELY., 220μF/16V

Control P.C.Board

IC's

IC303	51E04934S01	μPC4574C
IC304	51T83403F01	μPC4570C
IC305	51T68388F01	TC4053BP
IC306	51T68388F01	TC4053BP
IC307	51T68387F01	TC4052BP
IC308	51T68387F01	TC4052BP
IC309	51T83403F01	μPC4570C
IC314	51T40391U01	TC4013BP
IC315	51S42616F01	TA7324P

Transistors

Q304	48T63085F01	2SD1225M
Q305	48T51091F01	2SC2021
Q306	48T51091F01	2SC2021
Q307	48T82762F04	DTA144EF
Q308	48T82762F06	DTA114YF
Q309	48T61307F01	DTC114YF
Q310	48T82762F06	DTA114YF
Q311	48T61307F01	DTC114YF
Q312	48T61307F01	DTC114YF
Q313	48T61307F01	DTC114YF
Q314	48T82762F13	DTA113ZF
Q315	48T61307F01	DTC114YF
Q316	48T82762F13	DTA113ZF
Q317	48T61307F01	DTC114YF
Q318	48T82762F13	DTA113ZF
Q319	48T61307F01	DTC114YF
Q320	48T82762F13	DTA113ZF
Q321	48T61307F01	DTC114YF
Q322	48T61307F01	DTC114YF
Q323	48T61307F01	DTC114YF
Q324	48T82762F06	DTA114YF

Diodes

D307	48T58583F01	1SS176
or	48E01902S01	GMA-01
D308	48T58583F01	1SS176
or	48E01902S01	GMA-01
D309	48T58583F01	1SS176
or	48E01902S01	GMA-01
D310	48T58583F01	1SS176
or	48E01902S01	GMA-01
ZD311	48T83129F29	Zener, HZS11A2L
D312	48T58583F01	1SS176
or	48E01902S01	GMA-01
D313	48T58583F01	1SS176
or	48E01902S01	GMA-01
D314	48T84052F01	11E2
or	48T73984F01	DSF10C
ZD315	48T68699F12	Zener, MTZJ-5.6C
ZD316	48T83129F29	Zener, HZS11A2L
ZD317	48T68699F12	Zener, MTZJ-5.6A
D325	48T58583F01	1SS176
or	48E01902S01	GMA-01

Capacitors

C129	23E04935S01	ELY., 33μF/10V
C130	21E04936S01	CER., 68pF
C131	23E04912S01	ELY., 1μF/50V
C132	23E04912S01	ELY., 1μF/50V
C133	23E04912S01	ELY., 1μF/50V

Symbol No.	Part No.	Description
C134	23E04912S01	ELY., 1μF/50V
C135	23E04908S01	ELY., 10μF/16V
C136	21E04937S01	CER., 1500pF
C137	23E04908S01	ELY., 10μF/16V
C229	23E04935S01	ELY., 33μF/10V
C230	21E04936S01	CER., 68pF
C231	23E04912S01	ELY., 1μF/50V
C232	23E04912S01	ELY., 1μF/50V
C233	23E04912S01	ELY., 1μF/50V
C234	23E04912S01	ELY., 1μF/50V
C235	23E04908S01	ELY., 10μF/16V
C236	21E04937S01	CER., 1500pF
C237	23E04908S01	ELY., 10μF/16V
C302	23E04922S01	ELY., 100μF/10V
C312	23E04938S01	ELY., 100μF/16V
C313	23E04909S01	ELY., 0.47μF/50V
C314	23E04939S01	ELY., 330μF/16V
C315	23E04908S01	ELY., 10μF/16V
C316	23E04908S01	ELY., 10μF/16V
C317	23E04938S01	ELY., 100μF/16V
C318	23E04908S01	ELY., 10μF/16V
C319	23E04933S01	ELY., 220μF/16V
C320	23E04940S01	ELY., 4.7μF/16V
C321	23E04940S01	ELY., 4.7μF/16V
C322	23E04909S01	ELY., 0.47μF/50V
C323	23E04909S01	ELY., 0.47μF/50V
C324	21E04941S01	CER., 0.1μF
C325	21E04942S01	CER., 0.01μF

Volume P.C.Board

LED's

LD318	48T72180F03	AABG4307K
LD319	48T72180F03	AABG4307K
LD320	48E04943S01	PR5551K
LD321	48E04944S01	AA5551K
LD322	48E04944S01	AA5551K
LD323	48E04945S01	BG5551K
LD324	48E04945S01	BG5551K

Volumes

Symbol No.	Part No.	Description
LD331 – VR313	18E04972S01	ASSY., Slide Volume

Switches

S303	40E04947S01	Slide, SSSS91 (CROSSOVER)
S304	40E04948S01	Tact, SKHLAD (DEFEAT)
S305	40E04948S01	Tact, SKHLAD (SUBWOOFER)

Connector P.C.Board

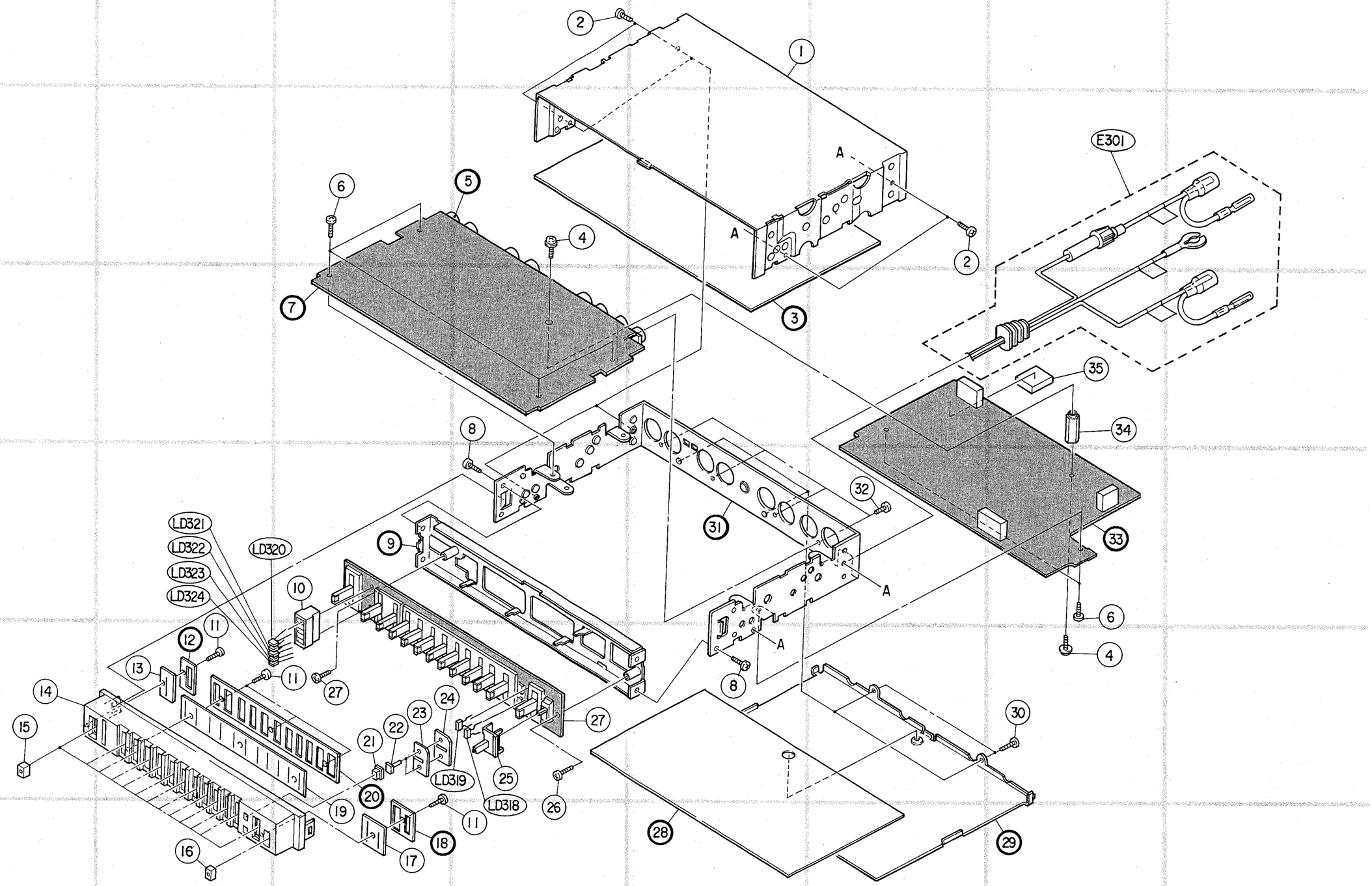
Connectors

J301	09E04949S01	RCA Pin Jack
J302	09E04949S01	RCA Pin Jack
J303	09E04949S01	RCA Pin Jack
J304	09E04949S01	RCA Pin Jack

Miscellaneous

E301	01E04950S04	ASSY., Power Cord
F301	65E04951S01	Fuse, 3A

Exploded View (Cabinet)



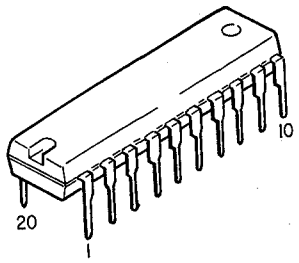
Cabinet Assembly Parts List

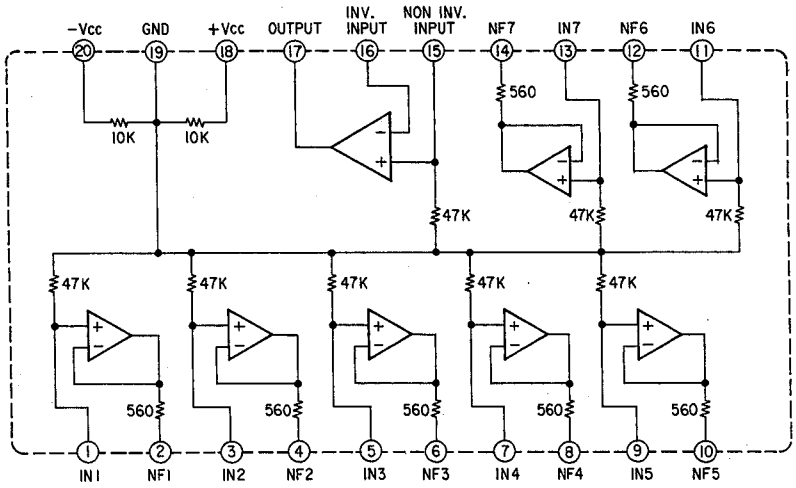
Symbol No.	Index	Part No.	Description		
1	1-E	15E04952S01	Cover, Top		
2	1-D	03E04953S01	Screw, Pan(M2.6×5)		
4	2-D	03E04955S01	Screw, Pan(M2.6×5)		
6	2-C	03E04957S01	Screw, Pan(M2.6×6)		
8	3-D	03E04958S01	Screw, Pan(M2.6×5)		
10	4-C	15E04960S01	Cover, LED		
11	5-B	03E04961S01	Screw, Pan(M2×4)		
13	5-B	75E04963S01	Cushion, Volume B		
14	5-A	13E04964S01	ASSY., Nosepiece		
15	5-A	36A66199F01	Knob, Slide		
16	6-B	36A66199F02	Knob, Slide		
17	6-C	75E04965S01	Cushion, Volume C		
19	6-C	75E04967S01	Cushion, Volume A		
21	5-C	36A84547F01	Knob, Base		
22	5-C	36A84548F01	Knob, Push		
23	5-C	75E04969S01	Cushion, Knob Push		
24	5-C	15E05055S01	Guide, Knob Push		
25	5-D	40E04970S01	Knob, SW		
26	6-D	03E04971S01	Screw, Pan(M2.6×6)		
27	5-C	18E04972S01	ASSY., Slide Volume Unit		
30	5-G	03E04975S01	Screw, Pan(M2.6×5)		
32	4-F	03E04977S01	Screw, Pan(M3×8)		
34	3-G	43E04978S01	Spacer		
35	3-G	75E04979S01	Cushion		

NOTE : The parts without part numbers are not supplied.

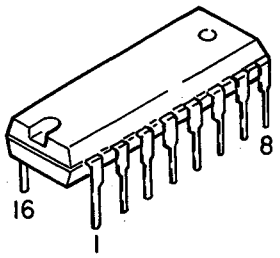
Semi-Conductor Lead Identifications

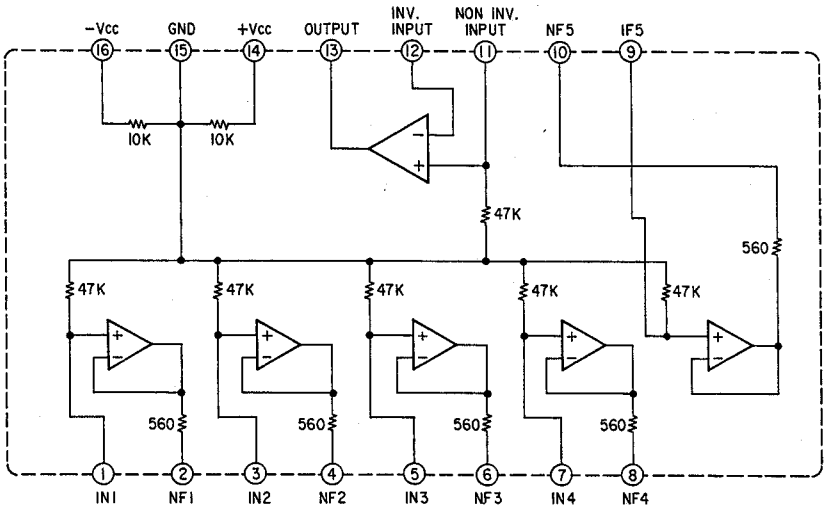
M5229P : IC101, 201



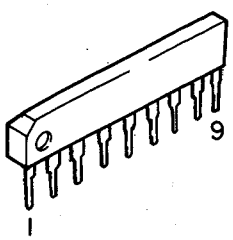


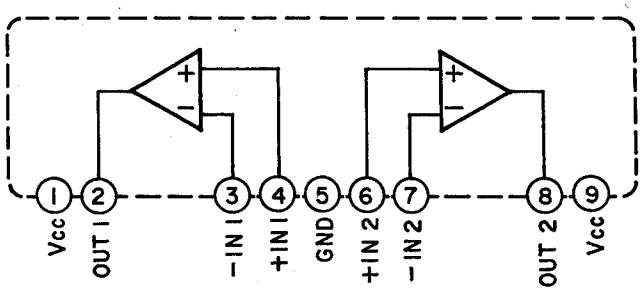
M5227P : IC102, 202



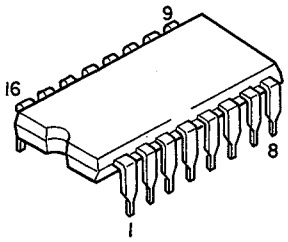


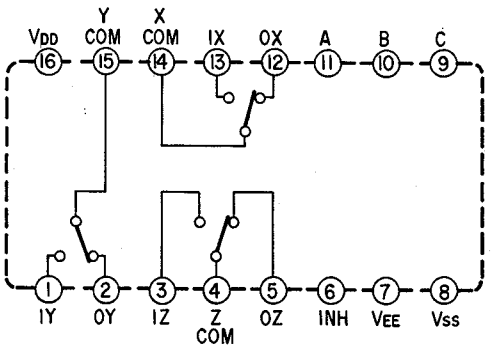
NJM2082S : IC301



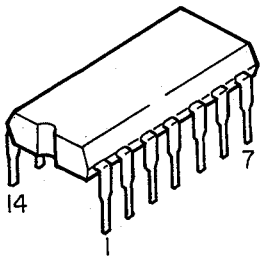


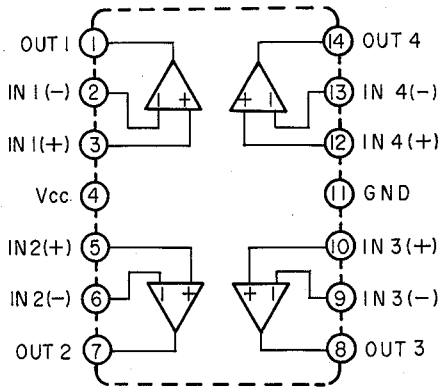
IC4053BP : IC302, 305, 306



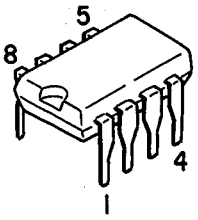


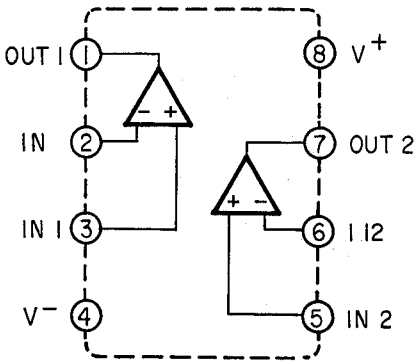
μPC4574C : IC303



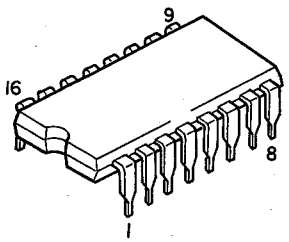


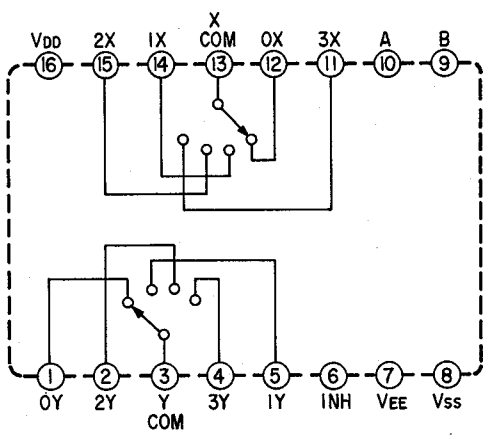
μPC4570C : IC304, 309



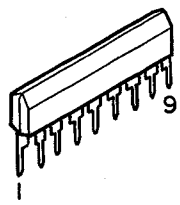


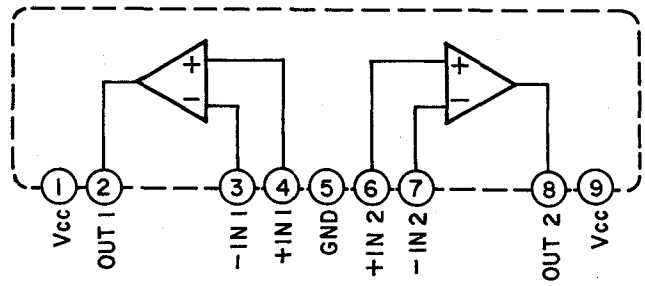
TC4052BP : IC307, 308



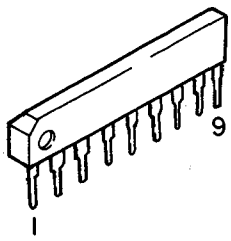


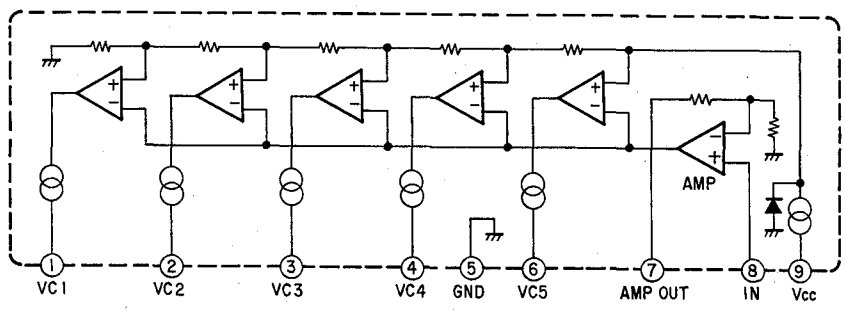
μPC4570HA : IC310 ~ 312



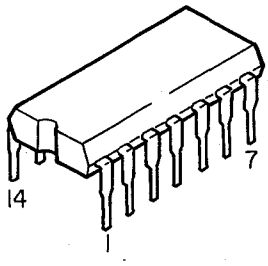


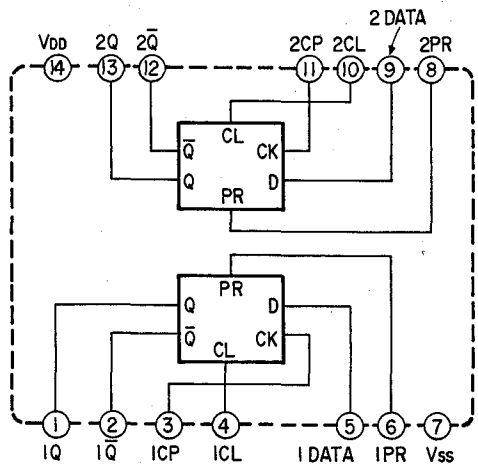
LB1403N : IC313



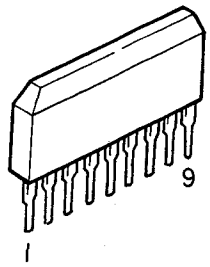


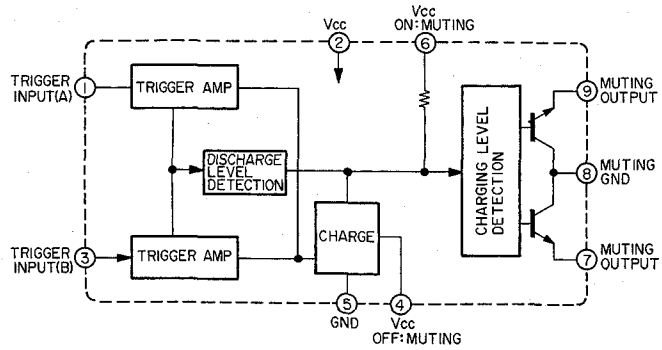
IC4013BP : IC314



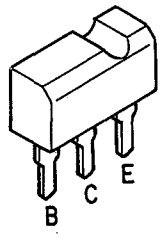


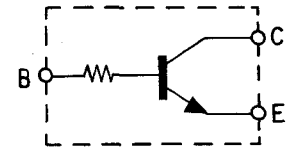
TA7324P : IC315



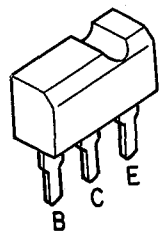


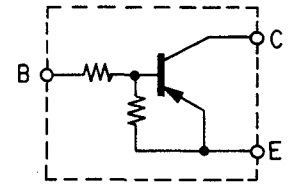
DTC363TF : Q101 ~ 103
Q201 ~ 203



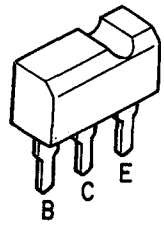


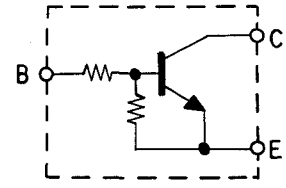
DTA114YF : Q301, 308, 310, 324
DTA144EF : Q307
DTA113ZF : Q314, 316, 318, 320



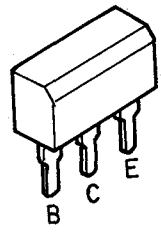


DTC114YF : Q302, 309, 311 ~ 313,
Q315, 317, 319
Q321 ~ 323

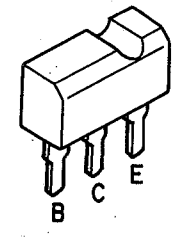




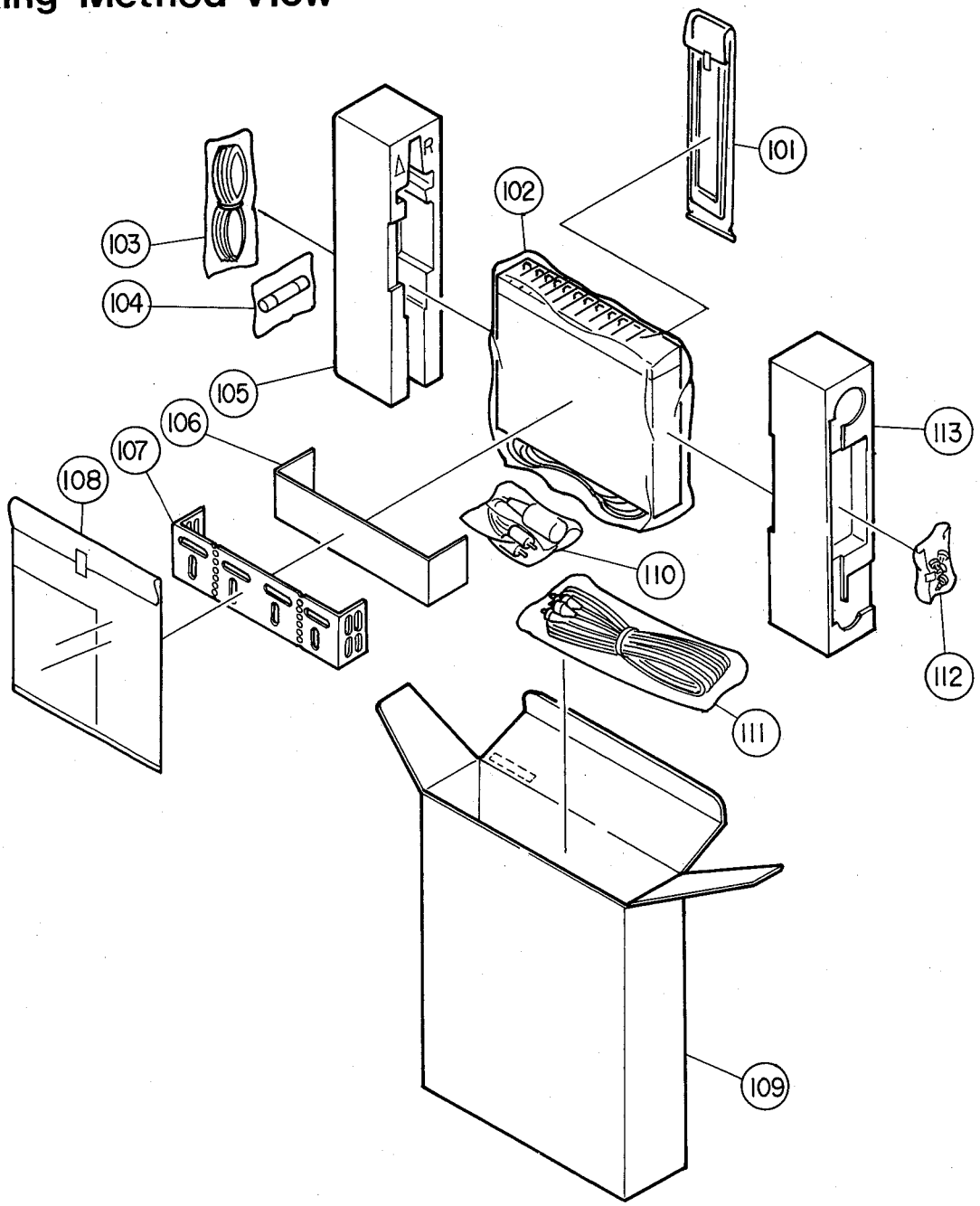
2SD1225M : Q303, 304



2SC2021 : Q305, 306



Packing Method View



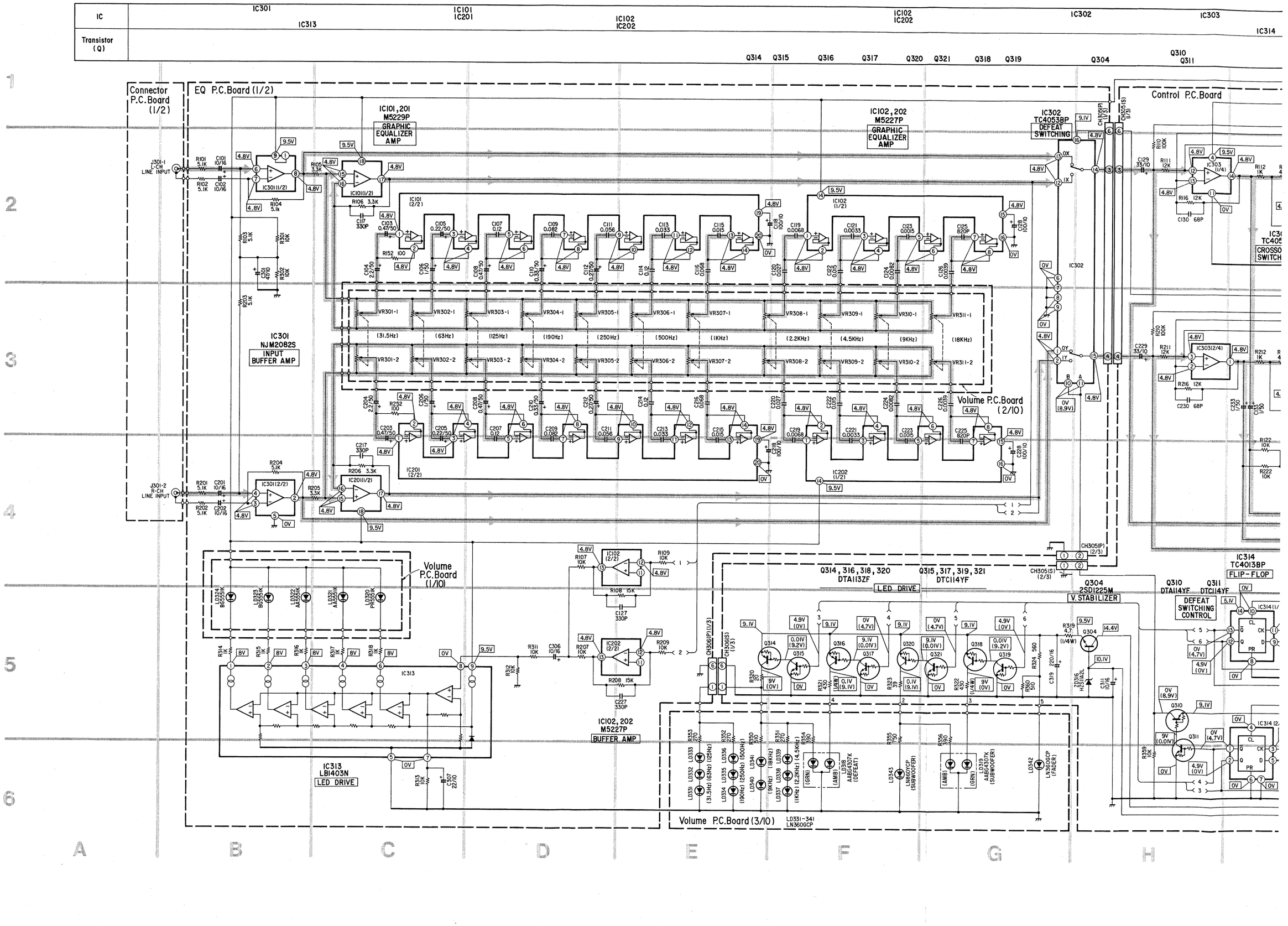
Packing Assembly Parts List

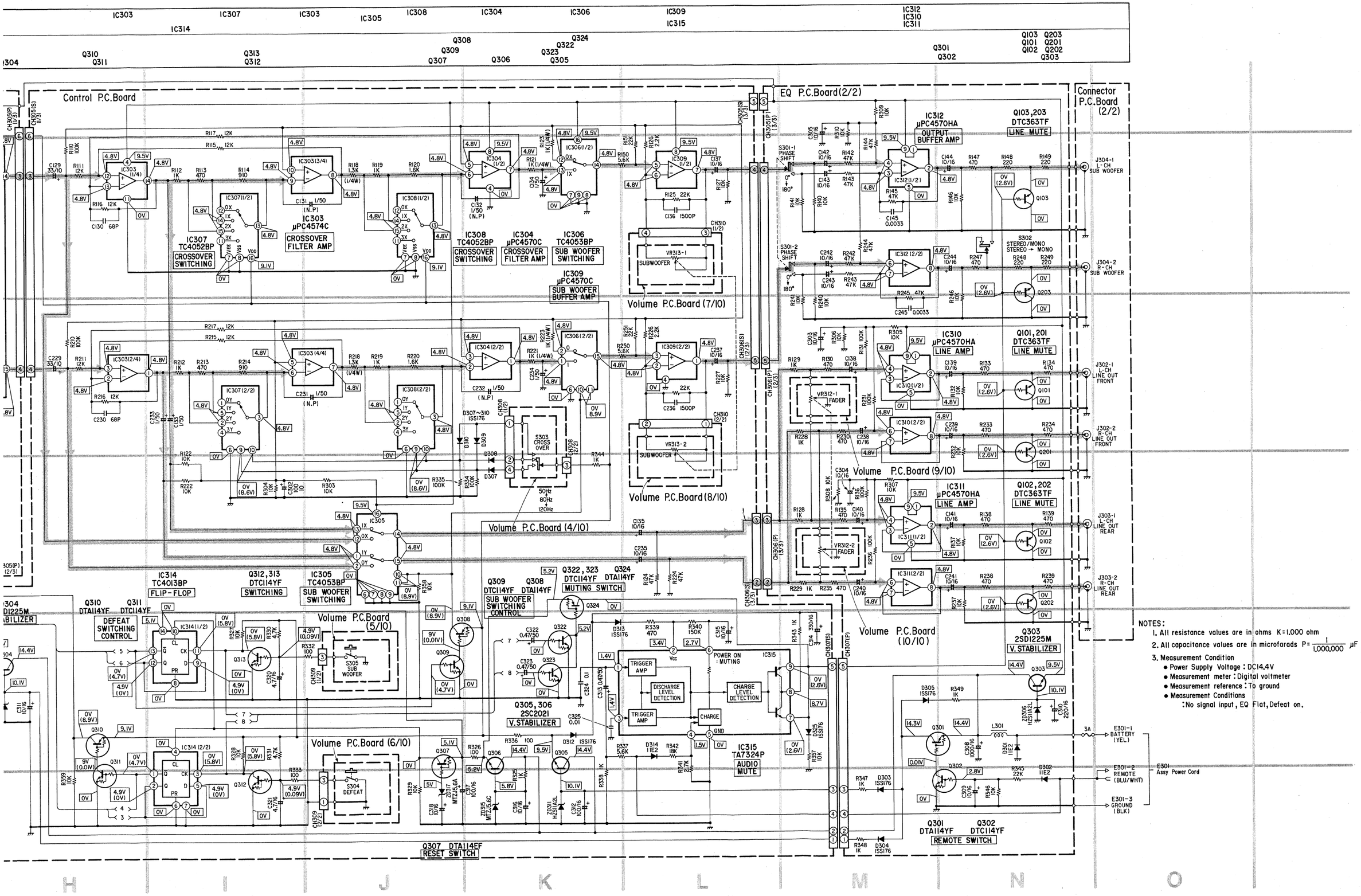
Symbol No.	Part No.	Description		
101	33B72141F01	Face, Plate		
102	56E04980S01	Sack, Polyethylene		
103	01E04950S01	ASSY., Power Cord		
104	65E04951S01	Fuse, 3A		
105	56E04981S01	Tray, Packing(R)		
106	56A65131F01	Pad Sheet		
107	07B52108F04	Bracket"U"Mounting		

Symbol No.	Part No.	Description		
● 108	01E05108S01	ASSY., PAMPH		
■ 108	68T81880F84	Owners Manual		
109	56E04982S01	Carton, Packing		
110	01T94453F01	ASSY., RCA-DIN		
111	01T96094F01	RCA Cable(600)		
112	01E05109S01	ASSY., Kit INS		
113	56E04986S01	Tray, Packing(L)		

● : For North American model only.
■ : For Eurpean model only. Others : Common.

Schematic Diagram





NOTES:

1. All resistance values are in ohms K=1,000 ohm
2. All capacitance values are in microfarads $P=\frac{1}{1,000,000}\ \mu F$
3. Measurement Condition
   - Power Supply Voltage : DC14.4V
   - Measurement meter : Digital voltmeter
   - Measurement reference : To ground
   - Measurement Conditions
     : No signal input, EQ Flat, Defeat on.